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THE CENTRALITY OF EVENT SCALE (CES): PSYCHOMETRIC PROPERTIES IN POLISH ADULTS WITH SPINAL CORD INJURY*

Introduction: Traumatic events may become central to an individual's identity and life narrative. The Centrality of Event Scale (CES), originally developed by Berntsen and Rubin (2006), is widely employed to assess this phenomenon.

Research Aim: To evaluate the psychometric properties of the Polish version of the CES among individuals with spinal cord injury.

Method: Two versions of the scale were examined: the original CES-20, comprising three subscales, and the shortened CES-7, which provides a general measure of event centrality. Psychometric analyses included assessments of dimensionality, reliability, and validity.

Results: The findings indicated that only the Polish CES-7-SCI demonstrated satisfactory psychometric indicators. The short version revealed a unidimensional structure, high internal consistency (Cronbach's $\alpha = .87$), and evidence of validity.

Conclusions: The Polish CES-7-SCI is a reliable and valid instrument for measuring traumatic event centrality in individuals with spinal cord injury, whereas the CES-20 did not meet psychometric standards in this sample.

Keywords: centrality of event, psychometric properties, spinal cord injury

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INTRODUCTION

The *Centrality of Event Scale* (CES) is a research instrument developed by Berntsen and Rubin (2006) to measure the extent to which stressful and traumatic life events have been integrated into an individual's identity and have become a central element of their life story. A traumatic event is defined as central when it becomes the main reference point in a person's life, shaping their beliefs, values, and perception of themselves and the world. When such an event is part of one's life experience, its memory is highly accessible and occupies a superior position in the general organization of autobiographical knowledge, which leads to its frequent recall and an increased need to cope with it. In turn, the high accessibility of the traumatic event in autobiographical memory stems from its significant emotional impact on the individual's life (Berntsen & Rubin, 2007).

Berntsen and Rubin (2006) proposed a three-factor structure for the CES to evaluate three distinct functions that traumatic life events can serve. The first function concerns the manner in which the traumatic life event has become a point of reference used as a guide for future behaviors or for learning from past experiences. The traumatic event serves as a reference point for assigning meaning to other experiences and for generating expectations regarding future events. The second function determines how the traumatic event is perceived as a turning point in a person's life, a significant landmark in their life story that signals an entirely new direction. This is the point that, in essence, opens new explanations for future life choices and cherished values. Thus, the traumatic event is treated as one that causes profound changes in the perception of life and the prediction of its future course. Finally, the third function reflects the way the traumatic life event has become part of one's personal identity, generating new internal attributions related to the Self and various situations encountered by the individual (Berntsen & Rubin, 2006; 2007). Consistent with these assumptions, the CES captures these ways of integrating trauma into an individual's overarching life story and identity. Individuals differ in the extent to which a traumatic or highly stressful event is integrated as a central element of their life story, personal identity, and worldview (Gehrt et al., 2018).

The *Centrality of Event Scale* is a popular instrument utilized in various contexts, such as post-traumatic stress disorder (PTSD), depression, and general psychopathology. Previous research findings have demonstrated that the centrality of a traumatic event is associated with greater severity of PTSD (Barton et al., 2013; Boals & Ruggero, 2016), depression (Vermeulen et al., 2024; Zaragoza et al., 2020), psychopathological symptoms (Willcot-Benoit & Cummings, 2024), impaired physical health (Boals et al., 2010), as well as impaired physical and mental health (Willcot-Benoit & Cummings, 2024). A literature review by Gehrt et al. (2018) indicated that CES scores were most strongly correlated with measures related to trauma, PTSD, grief, and autobiographical memory. However, few analyses have

employed the CES among individuals who have experienced the traumatic life event of acquiring a permanent physical disability, particularly spinal cord injury (SCI). Research by Boals et al. (2017) showed a positive association between event centrality and PTSD symptoms, as well as the subjective sense of disability in people with SCI, even after controlling for demographic variables and depression. Furthermore, Warmann et al. (2016) found that event centrality correlates with greater pain intensity and the perception of disability in individuals with SCI.

Berntsen and Rubin (2006) proposed two versions of the *Centrality of Event Scale*: a longer 20-item version (CES-20) and a shorter 7-item version (CES-7). The short version was created using the items that correlated most strongly with the total score of the CES-20 (Berntsen & Rubin, 2006). Both CES versions have been tested by numerous researchers who investigated both the three-factor and one-factor structure in diverse samples, including adolescents (Ionio et al., 2018; Vagos et al., 2018), students (Galan et al., 2017; Vermeulen et al., 2023), and patients (Uzer et al., 2020). The resulting data are not unequivocal. Based on these findings, confirming a clear three-factor structure for either the CES-20 or the CES-7 is problematic. Better fit indices were obtained when testing the one-factor structure – the total score (Galan et al., 2017; Vagos et al., 2018), where the results are more consistent. Consequently, given that more studies (Azadfar et al., 2022; Galan et al., 2017) have shown favorable indices for the one-factor CES-7, this shorter version of the instrument has been used much more frequently in analyses to-date.

To-date, the psychometric properties of the Centrality of Event Scale (CES-20 and CES-7) have not been examined within the Polish population, which was the primary motivation for initiating adaptation work. An additional rationale was to conduct analyses within a specific group of individuals who experienced the unique traumatic life event of acquiring a permanent physical disability due to an SCI. Regardless of its etiology, experiencing an SCI possesses the characteristics of a traumatic event due to drastic psychophysical changes it causes as well as its chronic consequences (Pollock et al., 2017). The resulting permanent physical disability is associated with numerous limitations, necessitating reconstruction of previous ways of functioning. Moreover, it requires essential transformations in previously stable cognitive schemas that reflect beliefs about the world and the self (Janoff-Bulman, 1999). The radical negative physiological, cognitive, and psychosocial changes following SCI contribute to the features of a traumatic event, ultimately causing a broad range of stimuli to trigger thoughts and emotions related to the experienced disability (Boals et al., 2017). Therefore, the centrality of this event is highly probable, and given the permanence of SCI's consequences, it may remain pronounced irrespective of the amount of time elapsed since its occurrence (Bishop, 2005). As a result, a person with an SCI may strongly identify as a person with a disability, which serves as a crucial point of reference for their personal identity (Warmann et al., 2016).

RESEARCH PROBLEM AND AIM

The aim of the study presented in this paper was to evaluate the psychometric properties of the newly developed Polish adaptation of the Event Centrality Scale (CES) in a sample of individuals with spinal cord injury. In our study, we also investigated the association between the CES-7 score and the severity of anxiety and depression, as well as other reactions characterized as maladaptive, including denial, internalized anger, and externalized hostility. We tested two hypotheses: H1: The CES-7 score will be positively correlated with anxiety and depression scores. H2: There will be a positive correlation between the CES-7 and the other maladaptive reactions (denial, internalized anger, and externalized hostility).

The authors of the original scale (Berntsen & Rubin, 2006) suggested that the CES score may not necessarily exhibit a positive, linear correlation with other post-traumatic states, such as PTSD. Nevertheless, research among individuals with SCI demonstrated that the CES-7 score is positively associated with PTSD. It also serves as a strong predictor within samples experiencing SCI as a traumatic event (Boals et al., 2017).

MATERIALS AND METHOD

The process of the Polish adaptation of the CES comprised the following stages: preparation of the Polish language version, examination of the structure, and assessment of reliability as well as construct and criterion validity. In accordance with structural assumptions of the original version of the Event Centrality Scale (CES) proposed by Berntsen and Rubin (2006), the structure of the Polish adaptation was initially examined using Confirmatory Factor Analysis (CFA). If satisfactory model fit indices were not achieved, a second step involving Exploratory Factor Analysis (EFA) had been planned. Conducted analyses assessed the psychometric properties of both CES versions – the 20-item CES-20 and the 7-item CES-7 – following the approach adopted by the authors of the original scale. The CES-7 consists of a subset of items – specifically items 6, 10, 12, 14, 16, 17, and 18 – drawn from the full CES-20 scale (Berntsen & Rubin, 2006).

Psychometric properties of the Polish version of the Centrality of Event Scale (CES) were examined across two studies. In the first study, the factorial structure of both the full CES-20 and the abbreviated CES-7 was examined. Based on the results of this initial analysis – particularly the inadequate fit indices for the CES-20 and the satisfactory performance of the CES-7 – the second study focused exclusively on a more in-depth psychometric evaluation of the CES-7. This included assessments of reliability as well as construct and criterion-related validity.



Development of the Polish Language Version

After the authors of the original scale provided their approval to adapt the CES-20 for the Polish population, a forward-backward translation procedure was implemented. Initially, two independent translators, one of whom had supplementary psychological training, translated the CES into the Polish language. The two Polish versions were then compared, resulting in terminological refinement in several areas and creation of a preliminary Polish CES version. This provisional scale was then independently translated back into English by two different translators. A subsequent scale revision was performed by an expert panel comprising two psychologists, an educational specialist (pedagogue), an English translator, and a Polish philologist. The Polish version of the CES-20 resulting from this discussion was subsequently used in the study of individuals with an SCI.

Data collection was conducted in person by the authors through outreach to organisations, foundations, and associations supporting adults with mobility disabilities. Participants were fully informed of the anonymous and voluntary nature of the study, as well as their right to withdraw at any stage. All participants provided informed, written consent to participate. No compensation was offered for their involvement. The research protocol received a favourable opinion from the University's Scientific Research Ethics Committee (Opinion No. 4/2024).

Study 1

Testing Psychometric Properties of Polish CES-20 and CES-7

Psychometric analysis of the CES-20 and the CES-7 was conducted on data collected from a sample of 221 individuals with SCI. Inclusion criteria for participation were as follows: a) SCI duration of at least 5 years; b) age between 18 and 60 years; and c) independent functioning (e.g., wheelchair user, crutches).

Participants

Participants' age ranged from 18 to 59 years ($M = 37.38$ years, $SD = 9.23$). The sample consisted of 113 women (51.1%) and 108 men (48.9%). A majority of the sample resided in urban areas (131; 59.3%), with the remaining participants residing in rural areas (90; 40.7%). Participants' marital status was distributed as follows: single (176; 79.6%), married (29; 13.1%), and divorced or separated (16; 7.3%). Educational attainment included: primary (63; 28.5%), vocational (18; 8.1%), secondary (107; 48.4%), some tertiary education (21; 9.5%), and tertiary education (12; 5.4%). Most individuals did not have full-time, permanent employment (174; 78.7%). The mean age of acquiring an SCI was $M = 20.54$ years ($SD = 9.05$), and the mean duration of the disability was $M = 15.79$ years ($SD = 8.75$). Participants also self-rated their level of daily functioning on a 5-point scale, where 1 indicated a very low level and 5 indicated a very high level. The mean subjective level of daily functioning for the participants was $M = 3.04$ ($SD = .65$).

Study 2

Testing Psychometric Properties of Polish CES-7

This subsequent study was conducted with a sample of 167 individuals with SCI. Inclusion criteria were identical to the first phase: a) SCI duration of at least 5 years; b) age between 18 and 60 years; and c) independent functioning (e.g., wheelchair user, crutches). Individuals with multiple comorbid medical conditions were excluded from this sample.

Participants

Participants' mean age was $M = 35.56$ ($SD = 10.11$). The sample predominantly consisted of men (99; 59.3%; women: 68; 40.7%) and urban residents (93; 55.7%). Most participants were single: 132; 79.0% (married: 19; 11.4%; divorced or separated: 16; 9.6%). Educational attainment was distributed as follows: primary (62; 37.1%); vocational (17; 10.2%); secondary (65; 38.9%); some tertiary education (15; 9.0%); and tertiary education (8; 4.8%). Majority of the individuals were not in permanent, full-time employment (123; 73.7%). The mean age of SCI acquisition was $M = 21.08$ years ($SD = 9.63$), and the mean duration of SCI was $M = 16.71$ years ($SD = 8.26$). As in the first phase, participants rated their level of daily functioning on a 1-to-5 scale (1 = very low, 5 = very high). The mean self-reported level of daily functioning was $M = 3.11$ ($SD = .61$).

Measures

The *Reactions to Impairment and Disability Inventory (RIDI)* developed by Livneh and adapted for Polish by Byra and Kirenko (2016). The RIDI is a 60-item, self-report questionnaire, rated on a 4-point scale (where 1 = never and 4 = often). It comprises eight subscales designed to measure potential adaptive reactions in individuals with chronic illness and physical disability: Shock, Anxiety, Denial, Depression, Internalized Anger, Externalized Hostility, Acceptance, and Adjustment. Reliability of the instrument in this population was satisfactory, with Cronbach's α for the subscales ranging from .68 to .95.

The *Appraisals of Disability Primary and Secondary Scale (ADAPSS)*; original: Dean, Kennedy; Polish version: Byra, 2017a). The ADAPSS consists of 32 items rated on a 6-point Likert scale, ranging from 1 = strongly disagree to 6 = strongly agree. The scale comprises six subscales: Fearful Despondency, Overwhelming Disbelief, Negative Perceptions of Disability, Determined Resolve, Growth and Resilience, and Personal Agency. Cronbach's α coefficients for the analyzed sample across individual subscales ranged from .71 to .88.

The *World Assumptions Scale (WAS)*; original: Janoff-Bulman; Polish version: Załuski & Gajdosz, 2012). The WAS is a 32-item instrument also rated on a 6-point scale, where 1 = strongly disagree and 6 = strongly agree. The scale measures eight categories of beliefs about the world and the self: Benevolence of the World, Be-

nevolence of People, Controllability of Negative Events, Justice, Randomness, Self-worth, Luck, and Self-control. The internal consistency for the subscales in the analyzed sample was satisfactory, with Cronbach's α values ranging from 0.69 to 0.90.

The *Multidimensional Acceptance of Loss Scale (MALS)* (original: Ferrin, et al.; Polish version: Byra, 2017b). The *MALS* consists of 42 items rated on a 4-point scale, where 1 = strongly disagree and 4 = strongly agree. The *MALS* assesses four subscales defining various dimensions of disability acceptance: Subordinating physique relative to other values, Enlarging the scope of values, Transforming comparative-status values into asset values, and Containing the effects of disability. Cronbach's α coefficients for the analyzed sample across individual subscales ranged from .74 to .92.

DATA ANALYSIS

Confirmatory and exploratory factor analyses were conducted to determine the factorial structure of the Polish versions of the CES-20 and the CES-7. Internal consistency was assessed using Cronbach's alpha coefficient. Criterion-related validity was examined through correlation analyses employing Pearson's r .

RESULTS

Testing Psychometric Properties of Polish CES-20 and CES-7 (Study 1)

The initial phase of our analysis involved conducting a Confirmatory Factor Analysis (CFA), which did not provide support for either the one-factor or the three-factor structure of the CES-20. Model fit for the CES-7 was adequate, supporting a unidimensional structure (Table 1).

Table 1.
Results of CFA for CES-20 and CES-7

	RMSEA	CFI	NFI	TLI
one-factor CES-20	.118	.681	.621	.644
three-factor CES-20	.116	.696	.636	.654
one-factor CES-7	.080	.920	.911	.930

Note. Author's own study

Following the failure to achieve acceptable fit indices for the CES-20, its structure was subsequently explored through Exploratory Factor Analysis (EFA) using the Principal Axis Method with Oblimin rotation, examining both the one-factor

and the three-factor structures for the CES-20 and then the CES-7 (see Table 2). The one-factor structure CES-20 showed a relatively low percentage of explained variance (34.16%), which was significantly higher in the three-factor structure (61.71%). The established Cronbach's α values, for both the one-factor and the three-factor versions, were satisfactory. The CES-7 showed relatively high factor loadings, and the percentage of explained variance was 68.71%. Furthermore, it demonstrated satisfactory internal consistency (Cronbach's $\alpha = .86$).

Preliminary assessment of the results from testing the one-factor and the three-factor structures of the CES-20-SCI and the one-factor structure of the CES-7 suggested that the CES-20 with a one-factor structure had the weakest indicators due to the low percentage of explained variance (see Table 2). Doubts also arose regarding the content of the factors in the CES-20's three-factor structure. For instance, Factor 3 included items related both to the traumatic event becoming a reference point and to it becoming part of identity. These findings provided an interpretation inconsistent with the theoretical assumptions of the instrument and could simultaneously indicate that the assumed functions of the traumatic event are highly correlated rather than distinct, separate consequences of this type of event. Statistically and interpretively, the best results were obtained for the one-factor structure of the CES-7.

Table 2
Results of EFA for CES-20 and CES-7 and Cronbach's α

Item	Factor loading (1-factor model)	CES-20			CES-7
		Factor loading (3-factor model)			
		factor 1	factor 2	factor 3	Factor loading (1-factor model)
1	.45			.89	
2	.55			.73	
3	.59			.63	
4	.57			.66	
5	.62		.46		
6	.47			.65	.57
7	.57		.63		
8	.43		.62		
9	.60			.73	
10	.56		.80		.60

11	.59		.73		
12	.59	.46			.71
13	.63	.40			
14	.65		.60		.78
15	.56	.59			
16	.63	.62			.76
17	.61	.64			.77
18	.64	.68			.71
19	.65	.69			
20	.65	.60			
% of variance	34.16	36.18	15.89	9.64	68.71
Cronbach's α	.89	.85	.78	.81	.86

Note. Author's own study

Given the lack of acceptable model fit for the CES-20 and the supportive results for the CES-7 obtained through both CFA and EFA in the current study, the subsequent validation focused exclusively on the CES-7.

Testing Psychometric Properties of Polish CES-7 (Study 2)

In the first phase of the research, the CES-7 was initially checked by selecting the seven items that, according to the authors of the original scale, correlated most strongly with the CES-20's total score. Similarly, our findings showed that these specific items: 6, 10, 12, 14, 16, 17, and 18, correlated most strongly with the total score of the Polish CES-20 (Pearson's r ranged from .65 to .71). To eliminate the contextual influence of the remaining items on participants' responses to these seven selected items, the psychometric properties of the CES-7 were analyzed in a subsequent, dedicated study.

Our initial analytical steps focused on checking internal consistency (Cronbach's α) and the one-factor structure of the CES-7 using CFA. The factor loadings for individual CES-7 items and the Cronbach's α value are presented in Table 3 below. The results obtained were satisfactory. Factor loadings were high, and Cronbach's $\alpha = .87$ indicated satisfactory internal consistency for the CES-7.

Table 3
Factor loadings of CES-7 items and Cronbach's α

Item number	Item content	Factor
6	This event has become a reference point for my perception of myself and the world.	.64
10	I feel that this event has become a central part of my life story.	.71
12	This event has affected my thoughts and feelings about other experiences.	.75
14	If I were to weave a carpet symbolizing my life, I would put this event in the middle and the threads would branch out towards many other experiences.	.82
16	I Th This event has changed my life forever.	.77
17	I ofteI often think about the consequences this event will have for my future.	.76
18	This event has been a turning point in my life.	.76
Cronbach's $\alpha = .87$		

Note. Author's own study

The CFA successfully confirmed the one-factor structure of the CES-7 in the sample of individuals with SCI (RMSEA = 0.079; NFI = 0.929; TLI = 0.943; CFI = 0.962). Table 4 presents descriptive statistics for the CES-7 total score.

Table 4
Descriptive statistics for CES-7 total score

	Scale score range	Min	Max	<i>M</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
CES-7	7-35	9	34	29.06	4.66	-1.28	1.44

Note. Author's own study

The next analytical phase focused on examining validity of the CES-7. To verify the hypotheses regarding the CES-7's validity, data were collected using the Reactions to Impairment and Disability Inventory (RIDDI). The results provided support for the hypotheses, showing a positive correlation between the CES-7 total score and the severity of anxiety, denial, internalized anger, and externalized hostility. The strongest (negative) association was found between the CES-7 score and the severity of externalized hostility. What is important, the study found no significant association between the CES-7 score and the severity of depression in this sample of individuals with SCI. Finally, a negative correlation was observed between the CES-7 score and acceptance (see Table 5).

Table 5
Pearson's r between CES-7 score and RIDI results

Adaptive reactions RIDI	CES-7
Shock	0.06
Anxiety	0.28**
Denial	0.20**
Depression	0.14
Internalized Anger	0.27**
Externalized Hostility	0.35***
Acknowledgement	-0.25**
Adjustment	-0.03

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Note. Author's own study

Criterion validity of the CES-7 was tested by examining its associations with other measures expected to correlate with it: beliefs about the self and the world, disability appraisal, and acceptance of disability. The following hypotheses were formulated for verification: H3: The CES-7 score will be negatively associated with positive beliefs about the self and the world; H4: The CES-7 score will be positively associated with a negative appraisal of one's own disability and negatively correlated with a positive appraisal of one's own disability; H5: The CES-7 score will be negatively correlated with the acceptance of disability.

Data used to verify these hypotheses were collected using the following instruments: the Appraisals of Disability Primary and Secondary Scale (ADAPSS); the World Assumptions Scale (WAS) and the Multidimensional Acceptance of Loss Scale (MALS). Table 6 presents the Pearson's r correlation coefficients between the CES-7 scores and the results obtained from the ADAPSS, WAS, and MALS.

Table 6
Pearson's r between CES-7 scores and results obtained from ADAPSS, WAS, and MALS scales

	CES-7
<i>Beliefs about self and world (WAS)</i>	
Benevolence of the World	-.10
Benevolence of People	-.13
Controllability of Negative Events	-.17*
Justice	-.27**
Randomness	.15
Self-worth	-.52***

Luck	-0.06
Self-control	-.26**
<i>Appraisals of Disability Primary and Secondary Scale (ADAPSS)</i>	
Fearful Despondency	.31***
Overwhelming Disbelief	.31***
Negative Perceptions of Disability	.43***
Determined Resolve	-.28**
Growth and Resilience	-.07
Personal Agency	-.24**
<i>Multidimensional Acceptance of Loss Scale (MALS)</i>	
Subordinating physique relative to other values	-.28**
Enlarging the scope of values	-.03
Transforming comparative-status values into asset values	.08
Containing the effects of disability	-.24**

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Note. Author's own study

The correlation analysis showed a negative association between the CES-7 score and the belief that the world is just, as well as with beliefs of self-worth (which yielded the highest correlation coefficient) and the perceived controllability of negative events and self-control. Therefore, a higher CES-7 score is linked to the participants' weaker beliefs regarding the justice of the world, their self-worth, and their ability to control their own behavior. However, no significant associations were found between the CES-7 score and other positive assumptions, such as the benevolence of the world, the benevolence of people, or luck.

Consistent with our expectations, the findings demonstrated a positive correlation between the CES-7 score and negative appraisals of one's own disability. Those included Fearful Despondency, Overwhelming Disbelief, and Negative Perceptions of Disability. The study also revealed a negative correlation between the CES-7 score and two dimensions of positive disability appraisal: Determined Resolve and Personal Agency.

The correlation analysis further revealed that the CES-7 score is negatively correlated with the acceptance of disability, but only with two of its dimensions: Subordinating physique relative to other values and Containing the effects of disability. This finding indicates that a higher CES-7 score is associated with a reduced tendency for the individual to define themselves using non-physical attributes, abilities, or talents, suggesting they are more likely to define themselves based on physical imperfections and impairments. A higher score is also linked to perceiving a greater impact of the disability on daily functioning and the ability to achieve current and

future goals. In summary, the correlation analysis confirmed the hypotheses regarding the association between the CES-7 score and the incorporated measures of other variables. What is particularly interesting is that greater centrality of the traumatic event in individuals with SCI was linked to weaker beliefs regarding control, encompassing both negative life events and one's own behavior, as well as weaker beliefs concerning self-worth. Furthermore, greater event centrality is associated with a more negative appraisal of one's own disability, including lower conviction regarding possession of resources to effectively manage the obstacles resulting from the impairment. Higher levels of event centrality are associated with a greater tendency to self-identify through physical limitations rather than non-physical attributes, accompanied by a stronger belief that the acquired impairment adversely affects everyday functioning and personal development. It may be concluded that the robust "embedding" of the traumatic event into the identity structure of an individual with SCI (high event centrality) is a risk factor for psychological well-being. Instead of serving an adaptive function, such as promoting experiential integration and meaning-making, it functions maladaptively by restricting the sense of control, lowering self-esteem, reinforcing negative perceptions of disability, and narrowing identity to the aspect of "being a person with a disability."

DISCUSSION

Performed analyses confirm the satisfactory psychometric properties of the Polish version of the Centrality of Event Scale short form (CES-7) in people with spinal cord injury. The demonstrated results regarding its internal consistency, reliability, and validity support the use of the CES-7 as a viable assessment tool for both scientific research and clinical practice among individuals with physical disabilities, particularly those with SCI. However, the 20-item CES showed limited psychometric adequacy. Neither the one-factor nor the three-factor model of the original CES-20 was supported by our results.

The results of our study confirming the single-factor structure of the Centrality of Event Scale (CES) are not unique in this regard. Previous studies also show that event centrality is best represented by a single underlying factor (Bruce & Handal, 2023; Galan et al., 2017; Matos et al., 2010; Wamser-Nanney, 2019). This may suggest that the three theoretical functions of event centrality overlap and are interdependent, forming complementary components within the cognitive network of individuals confronting the consequences of trauma. As Vermeulen et al. (2020) propose, event centrality may not reflect three distinct principles, but rather a unified cognitive construct. Similarly to previous studies, we obtained satisfactory indicators supporting the single-factor structure of the short form of the Centrality of Event Scale (CES-7) (Azadfar et al., 2021; Berntsen & Rubin, 2006).

Studies examining the psychometric properties of the Centrality of Event Scale (CES-20 and CES-7) have been conducted among individuals who acquired a traumatic and permanent motor disability – namely, spinal cord injury (SCI). In the case of SCI, not only is the event itself embedded in the individual's autobiographical memory, but its lasting consequences radically alter prior patterns of functioning. While acquiring SCI constitutes a genuine turning point in a person's life narrative, the enduring effects of the injury – significantly limiting everyday activity – may simultaneously serve as a persistent factor reinforcing the event's centrality. Therefore, the duration since the onset of SCI may not necessarily diminish the embeddedness of this traumatic experience. This is reflected in the relatively high CES-7 scores observed in the present study among individuals with an average SCI duration of approximately 17 years. These scores are notably higher than those reported by Boals et al. (2017) in individuals during the early post-injury phase ($M = 5.6$ months). Such findings may suggest that event centrality in individuals with SCI can be reinforced by the cumulative impact of long-term injury-related consequences, including secondary health complications (Jørgensen et al., 2017). Moreover, the readily accessible negative consequences of acquiring a permanent injury may significantly narrow an individual's sense of identity, reducing it to the status of being a person with a disability. In turn, this may lead to the interpretation of everyday experiences primarily through the lens of one's disability (Warmann et al., 2016).

Previous research using the Centrality of Event Scale has shown that traumatic events perceived as central to an individual's identity and life narrative are associated with symptoms of posttraumatic stress disorder (PTSD) (Gehrt et al., 2019; Wamsler-Nanney, 2019), poorer mental health outcomes (Rubin et al., 2014), and negative appraisal of disability (Byra & Gabryś, 2025). In our study conducted within a group of individuals with spinal cord injury, higher levels of event centrality were associated with increased intensity of maladaptive responses, including anxiety, denial, internalized anger, and externalized hostility. Importantly, no significant correlations were found between event centrality and depressive symptoms in this group.

Event centrality thus appears to correspond with internalized negative emotional states, reflecting the event's strong integration into the individual's identity structure, while also indicating lack of acceptance and presence of defensive mechanisms such as increased denial. Previous studies have highlighted the critical role of persistent denial responses in the process of psychological adaptation to disability (Byra & Gabryś, 2023). These findings suggest that increased denial may contribute to maintaining traumatic event centrality, hence reinforcing its anchoring within the individual's life narrative. However, it is also plausible that denial serves as a coping strategy in response to the enduring centrality of the traumatic event and its impact on daily functioning and future orientation. The relationship between event centrality and maladaptive responses – particularly denial – requires

further investigation through longitudinal research. Event centrality may serve as a catalyst for subsequent negative outcomes and the activation of maladaptive responses; however, this largely depends on how the individual interprets the centrality of their traumatic experience (Steinberg et al., 2021). Furthermore, some longitudinal studies have indicated, for example, that it may not be event centrality that leads to PTSD, but rather that the development of PTSD following trauma exposure may result in the retrospective perception of the event as central to one's life story over time (Stevenes et al., 2022).

Given the satisfactory psychometric performance of the Polish CES-7, future research should more thoroughly investigate the relationship between the scale score and other post-traumatic factors, specifically anxiety-depressive symptomatology and the perception of the experienced disability. Building on the assumption that the perception of a traumatic event (including its consequences), rather than the type of event itself, is crucial for adaptive processes and coping outcomes (Gauer et al., 2013), the association between the appraisal and acceptance of one's own disability and the CES-7 warrants broader analysis. It is probable that, over the longer term, appraisal of one's own disability may influence appraisal of the centrality of the event that led to its acquisition. Similarly, while disability acceptance may be a consequence of the traumatic event's centrality (such as SCI acquisition), the level of acceptance – a result of numerous factors in the adaptation process – may also influence the degree to which the individual regards the event as central to their life and identity. These questions require subsequent analysis, especially within the framework of longitudinal studies.

CONCLUSIONS

Based on performed analyses, it can be concluded that only the CES-7 demonstrated a coherent unidimensional structure, thereby confirming its suitability for use within this population. Reliability testing indicated high internal consistency, as evidenced by satisfactory Cronbach's α , while criterion-related validity was supported through significant coefficient correlations. Taken together, these findings provide strong evidence that the Polish CES-7 is a psychometrically robust instrument for assessing traumatic event centrality, whereas the CES-20 did not achieve the required standards of measurement quality in this sample.

LIMITATIONS

Several limitations of the present study should be acknowledged. First, the sample consisted exclusively of individuals with spinal cord injury, which restricts gen-

eralisability of the findings to other populations experiencing traumatic events. Second, reliance on self-report measures may have introduced response biases, such as social desirability or recall bias, which could be particularly pronounced among individuals with long SCE duration. Third, the stability of the instrument was not examined, as no repeated measurement over time was conducted. Fourth, although the CES-7 demonstrated satisfactory psychometric properties, exclusion of the CES-20 limits the opportunity to explore the multidimensional theoretical framework originally proposed by Berntsen and Rubin.

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SKALA CENTRALNOŚCI ZDARZENIA (SCZ): PSYCHOMETRYCZNE WŁAŚCIWOŚCI W GRUPIE DOROSŁYCH OSÓB Z USZKODZENIEM RDZENIA KRĘGOWEGO

Wprowadzenie: Traumatyczne wydarzenia mogą stać się centralnym elementem tożsamości jednostki oraz narracji jej życia. Skala Centralności Zdarzenia (SCZ), opracowana przez Berntsen i Rubina (2006), jest szeroko stosowanym narzędziem do oceny tego zjawiska.

Cel badania: Ocena właściwości psychometrycznych polskiej wersji Skali Centralności Zdarzenia w grupie osób z urazem rdzenia kręgowego.

Metoda: Analizie poddano dwie wersje skali: oryginalną SCZ-20, obejmującą trzy podskale oraz skróconą SCZ-7, która dostarcza ogólnego wskaźnika centralności zdarzenia. Badanie obejmowało ocenę struktury czynnikowej, rzetelności oraz trafności narzędzia, z wykorzystaniem analizy czynnikowej eksploracyjnej i konfirmacyjnej, a także współczynników rzetelności oraz korelacji.

Wyniki: Uzyskane wyniki wskazują, że jedynie polska wersja SCZ-7 charakteryzuje się satysfakcjonującymi wskaźnikami psychometrycznymi. Skrócona wersja SCZ wykazała jednowymiarową strukturę, wysoką spójność wewnętrzną (α Cronbacha = .87) oraz potwierdzoną trafność.

Wnioski: Polska wersja SCZ-7 jest rzetelnym i trafnym narzędziem do pomiaru centralności traumatycznego zdarzenia u osób z urazem rdzenia kręgowego, podczas gdy SCZ-20 nie spełniła wymogów psychometrycznych w tej próbie.

Słowa kluczowe: centralność zdarzenia, właściwości psychometryczne, uszkodzenie rdzenia kręgowego